

*Notofenusa cognata* (Spinola), new combination

*Tenthredo cognata* Spinola, 1851. In Gay, Historia, fisica y politica de Chile, Zoologica, v. 6, p. 558.

This species must belong in *Notofenusa* because of its small size and coloration, and it may be one of the species described here. I was unable to locate the type, however, and because the classification of this genus is based on genitalia, the type will have to be examined for correct placement.

ACKNOWLEDGMENTS

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**A REVIEW OF KARSCHOMYIA FELT WITH DESCRIPTIONS OF SEVEN NEW NEARCTIC SPECIES (DIPTERA: CECIDOMYIIDAE)**

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ABSTRACT—*Karschomyia* Felt (Diptera: Cecidomyiidae) is redescribed and a key is given to the 10 Nearctic species. These are described and their genitalia are illustrated. The new species of *Karschomyia* described herein are **curiosa**, **ectopia**, **insolita**, **inuitata**, **mira**, **perissa**, and **praecipua**. The extra-Nearctic species are listed, with *elegans* Mamaev a new synonym of *ramosa* (Kieffer). *Karschomyia townsendi* Felt from Peru is transferred to *Coquillettomyia* Felt.

The genus *Karschomyia* Felt (Diptera: Cecidomyiidae: Cecidomyiidi) comprises a number of medium-sized, brown species which as adults are readily recognized by the transversely divided abdominal terga and sterna of segments II–VI. *Karschomyia* shares that char-

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acter with *Lobodiplosis* Felt, a closely related genus. The 2 genera differ only in the form of the male genitalia: in *Karschomyia* the basimere has glabrous, membranous mesal lobes of various bizarre shapes and the telomere is wide, mesally concave, and usually lobed; the basimere of *Lobodiplosis* has a setose apicoventral lobe and the telomere is elongate-attenuate. Females of these genera are neither separable to genus nor identifiable to species except in association with males.

The little that is known of the biology of *Karschomyia* indicates that the larvae are saprophagous. Most of the Nearctic species were either swept or caught in traps, but some were reared from such various sources as stems of Iceland poppy, a pig carcass [3 species from the same pig!], and pine bolts. Three Palaearctic species have been reared from decaying wood.

#### *Karschomyia* Felt

*Karschomyia* Felt 1908:398. Type-species, *Mycodiplosis viburni* Felt (orig. des.).

Male: Postvertical peak elongate. Eyes very large, broadly connate at vertex; eye facets hexagonoid. Antennal flagellomeres elongate, trinodal, trifilar; circumfila regular, not elongate, most loops not reaching to following node. Palpus long, 4 segmented. Wing:  $R_s$  faint, located approximately  $\frac{1}{3}$  distance from arculus to apex of  $R_1$ ;  $R_2$  not bent at  $R_s$ , strongly curved apically to join  $C$  posteriad of wing apex;  $C$  broken at juncture with  $R_2$ ;  $Cu$ ,  $M_{3+4}$ , and  $PCu$  strong. Tarsal claws strongly bent at basal  $\frac{1}{3}$ , longer than empodia, simple or toothed either on all legs or only forelegs. Abdominal terga and sterna II-VI transversely divided cephalad of caudal setal row. Genitalia: basimere spherical, robust, with glabrous, membranous, mesal lobes; telomere of various shape, not elongate-attenuate, usually concave mesally and lobed; cerci short, quadrate; sternum X lobes triangular or quadrate, of same length as cerci, each lobe bisetose apically; aedeagus long, somewhat pigmented, of bizarre shape.

Female: Antennal flagellomeres elongate, usually slightly constricted near middle, circumfila with many closely-set bases. Ovipositor not protrusible; sternum VIII not sclerotized or setose; sternum IX covered with long setae; tergum IX naked; cerci truncate-ovoid with setae of approximately uniform length.

Larva (from Mamaev & Krivosheina (1965)): spatula clove-shaped. Post-ventral papillae without setae. Terminal papillae in 2 groups of 4 each, 3 papillae of each group with short, pointed setae, 1 with shorter, blunt seta.

As reported in Gagné (in press), *Metadiplosis* Felt (1908), *Plesio-bremia* Kieffer (1912), and *Hiastatus* Marikovskij (1956) are synonyms of *Karschomyia*.

There are 10 Nearctic species, 7 of which are new to science and described herein. These are separated most easily by the shape of the male genitalia, but also by the setation of the male abdominal tergum VII and the presence or absence of teeth on the tarsal claws.

None of the species is Holarctic except possibly *caulicola*. In addition to the Nearctic species there are 8 Palaearctic and 1 Indian, as follows: *abnormis* (Mamaev, 1961b), *aceris* Mamaev (1960), *concinna* (Marikovskij, 1956), *curvidentata* (Mamaev, 1961b), *hemisphaerica* Kovalev & Mamaev (1966), *marikovskii* (Mamaev, 1961b), *orientalis* (Grover, 1965), *ramosa* (Kieffer, 1904; = *elegans* Mamaev (1961a), new synonym), and *xylophila* (Mamaev, 1961b).

In the Felt Collection, on loan to the Systematic Entomology Laboratory from the New York State Museum in Albany, there is a male specimen labeled, "*Bremia ramosa* Kieffer—from J. J. Kieffer," and it is apparently properly identified. Although Kieffer (1913) illustrated the male genitalia of *ramosa*, the drawing is meaningful only when compared with an actual specimen. The specimen also fits the illustration of *elegans* in Mamaev (1961a), and this is the reason for the above new synonymy.

*Karschomyia townsendi* Felt (1912) from Peru is here transferred to *Coquilletomyia* Felt. *New combination*. The male genitalia of *townsendi*, with the short, sclerotized, bifid aedeagus and elongate, linear, asetose sternum X, are characteristic of *Coquilletomyia*, and the abdominal terga and sterna are entire. The names I have chosen for the 7 new species described below all mean "peculiar," a reference to the bizarre male genitalia.

Key to adults of Nearctic *Karschomyia*

- |  |                                   |
|--|-----------------------------------|
| 1. Foretarsal claw toothed, mid and hind claws toothed or simple   | 2                                 |
| — Tarsal claws simple  | 7                                 |
| 2. All tarsal claws toothed  | <i>K. inusitata</i> Gagné, n. sp. |
| — Only foretarsal claws toothed  | 3                                 |
| 3. Caudal setal row of male tergum VII continuous  | 4                                 |
| — Caudal setal row interrupted mesally   | 5                                 |
| 4. Aedeagus forked proximad of midlength; telomere rounded apically (fig. 4-6)                               | <i>K. curiosa</i> Gagné, n. sp.   |
| — Aedeagus forked apically; telomere acute apically (fig. 11)  | <i>K. perissa</i> Gagné, n. sp.   |
| 5. Aedeagus narrow, attenuate, sinuous in lateral view; telomere deeply lobed (fig. 16-18)                   | <i>K. viburni</i> (Felt)          |
| — Aedeagus wide, only weakly curved in lateral view; telomere entire   | 6                                 |
| 6. Aedeagus spinulose, with 4 apical recurved hooks (fig. 25-26)   | <i>K. mira</i> Gagné, n. sp.      |
| — Aedeagus spinulose, without hooks (fig. 1-2)   | <i>K. caulicola</i> (Coquillett)  |
| 7. Caudal setal row of male tergum VII continuous  | 8                                 |
| — Caudal setal row interrupted mesally   | 9                                 |
| 8. Aedeagus palmately divided, lobes large; telomere widest near midlength, with 1 apical tooth (fig. 14-15) | <i>K. spinosa</i> (Felt)          |
| — Aedeagus trifid only apically; telomere widest apically, with 2 apical teeth (fig. 7-10)                   | <i>K. ectopia</i> Gagné, n. sp.   |

9. Aedeagus trifold from base; telomere deeply bilobed, apical tooth narrow (fig. 22-24) ..... *K. insolita* Gagné, n. sp.  
 — Aedeagus divided only apically, telomere not deeply lobed, apical tooth wide, discontinuous (fig. 12-13) ..... *K. praecipua* Gagné, n. sp.

*Karschomyia caulicola* (Coquillett)

fig. 1-3

*caulicola* Coquillett 1895:401 (*Diplosis*).

Wing length: male, 1.7 mm; female, 2.1-2.3 mm. Foretarsal claw toothed, mid and hind claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 1-3.

Types: Lectotype, here designated, male, reared from larvae ex stem Iceland poppy, *Papaver nudicaule* L. (Papaveraceae), Isles of Shoals, N. H., emerged VII, 1893, USNM Type No. 6085. Paralectotypes, male and 10 females, same data as holotype.

The drawing accompanying the original description of the Palearctic *K. concinnus* (Marikovskij) (1956) shows some resemblance to this species in the trifoliate interparameral structure and the spinose aedeagus.

*Karschomyia curiosa* Gagné, new species

fig. 4-6

Wing length: male, 2.0 mm. Foretarsal claw toothed, mid and hind claws simple. Caudal row of setae of male tergum VII continuous. Male genitalia as in fig. 4-6. Female unknown.

Holotype, male, swept, Wheaton Park, Montgomery Co., Md., VIII-27-1970, R. J. Gagné, USNM Type No. 72373. Paratype, male, Robin Branch (near Wayah Bald), 4480', Macon Co., N.C., 38° 10.1' N, 83° 35.1' W, VII-3-1958, J. L. Laffoon, in Laffoon Collection, Iowa State University.

*Karschomyia ectopia* Gagné, new species

fig. 7-10

Wing length: male, 1.7 mm. Tarsal claws simple. Caudal row of setae of male tergum VII continuous. Male genitalia as in fig. 7-10. Female unknown.

Holotype, male, Holmes Run, Va., VII-1-1960, W. W. Wirth, USNM Type No. 72374.

The genitalia of this species approach those of *K. perissa* in the general shape of the telomere and apically trifid aedeagus. *Karschomyia ectopia* differs, however, in other details of the genitalia, e.g. the apically narrower aedeagus and wider sternum X, and in the simple foretarsal claws.

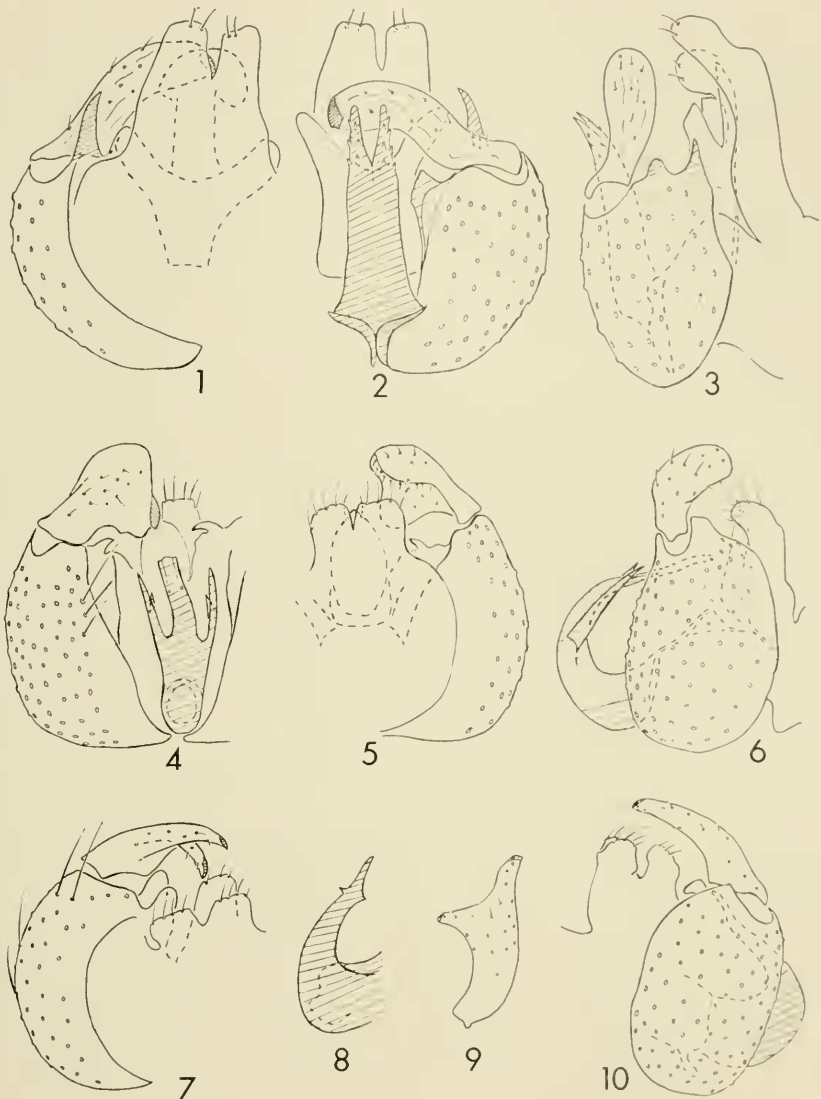


Plate 1

Fig. 1-10, male genitalia: 1, *Karschomyia caulicola* (dorsal). 2, same (ventral). 3, same (lateral). 4, *K. curiosa*, n. sp. (ventral). 5, same (dorsal). 6, same (lateral). 7, *K. ectopia*, n. sp. (dorsal). 8, same, aedeagus (lateral). 9, same, telomere (caudal). 10, same (lateral).

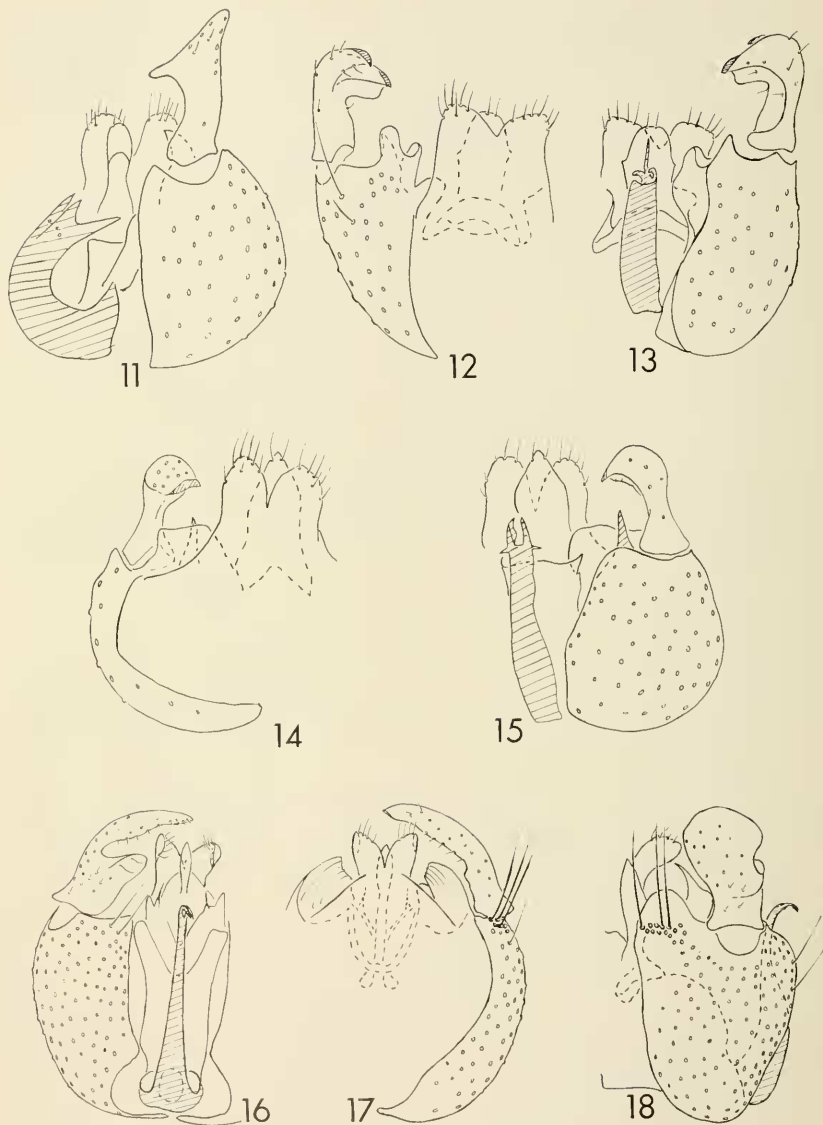


Plate 2

Fig. 11-18, male genitalia: 11, *Karschomyia perissa*, n. sp. (ventral view but aedeagus flattened to lateral view). 12, *K. praecipua*, n. sp. (dorsal). 13, same (ventral). 14, *K. spinosa* (dorsal). 15, same (ventral). 16, *K. viburni* (ventral). 17, same (dorsal). 18, same (lateral).

*Karschomyia insolita* Gagné, new species

fig. 22-24

Wing length: male, 2.0 mm; female, 2.3 mm. Tarsal claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 22-24.

Holotype, male, Black Lake, N. Burgess Township, Ontario, VII-27-1970, J. A. Downes, to be deposited in Canadian National Collection. Paratypes, 2 males, female, same data as holotype, deposited in USNM.

*Karschomyia inusitata* Gagné, new species

fig. 19-21

Wing length: male, 1.4-1.5 mm. Tarsal claws toothed. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 19-21. Female unknown.

Holotype, male, ex loblolly pine logs infested with *Dendroctonus frontalis* Zimm. (Coleoptera: Scolytidae), Elizabeth, La., VI-1968, L. S. Pickard, USNM Type No. 72376. Paratypes: 2 males, ex pig #7 (dry stage), Clemson, S.C., VIII-15-1966, J. A. Payne; 5 males, Silver Spring, Md., VIII-9-1972, W. W. Wirth.

*Karschomyia mira* Gagné, new species

fig. 25-26

Wing length: male, 1.7-2.9 mm. Foretarsal claw toothed, mid and hind claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 25-26. Female unknown.

Holotype, male, Silver Spring, Md., VIII-9-1972, W. W. Wirth, USNM Type No. 72375. Paratypes, 3 males, same data as holotype.

*Karschomyia perissa* Gagné, new species

fig. 11

Wing length: male, 1.7 mm. Foretarsal claw toothed, mid and hind claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 11. Female unknown.

Holotype, male, ex pig #7 (dry stage), Clemson, S.C., VIII-15-1966, J. A. Payne, USNM Type No. 72377.

*Karschomyia praccipua* Gagné, new species

fig. 12-13

Wing length: male, 1.9 mm. Tarsal claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 12-13. Female unknown.

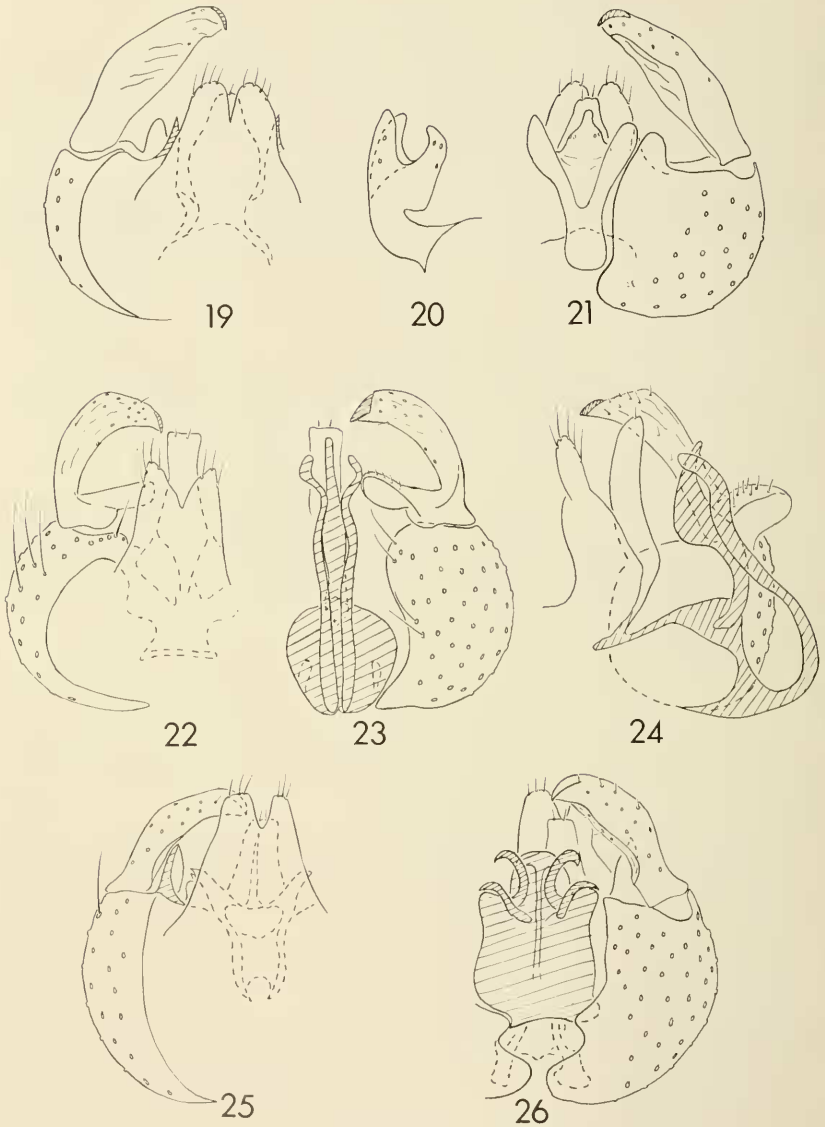


Plate 3

Fig. 19-26, male genitalia: 19, *Karschomyia inusitata*, n. sp. (dorsal). 20, same, aedeagus (lateral). 21, same (ventral). 22, *K. insolita*, n. sp. (dorsal). 23, same (ventral). 24, same (mesal). 25, *K. mira*, n. sp. (dorsal). 26, same (ventral).



Holotype, male, collected on *Salicornia virginica* L. (Chenopodiaceae), extracted by Berlese funnel, Sonoma Co., California, X-25-1968, G. N. Cameron, USNM Type No. 72378.

*Karschomyia spinosa* (Felt)

fig. 14-15

*spinosa* Felt 1908:406 (*Metadiplosis*).

Wing length: male, 1.8 mm. Tarsal claws simple. Caudal row of setae of male tergum VII continuous. Male genitalia as in fig. 14-15. Female unknown.

Holotype, male, Albany, N.Y., VII-14-1906, C 573, in Felt Collection.

Additional material examined: male, Wabasha, Minn., A. E. Pritchard.

*Karschomyia viburni* (Felt)

fig. 16-18

*viburni* Felt 1907:34 (*Mycodiplosis*).

Wing length: male, 1.7-2.2 mm; female, 1.9-3.0 mm. Foretarsal claw toothed, mid and hind claws simple. Caudal row of setae of male tergum VII interrupted mesally. Male genitalia as in fig. 16-18.

Holotype, male, Albany, N.Y., VI-1-1906, C 89, in Felt Collection.

Additional material examined: B.C.: Longford, IX-18-1963. CAL.: Mt. Home, San Bernardino Mts., San Bernardino Co., A. L. Melander. MD.: Silver Spring, VIII-9-1972, W. W. Wirth. MASS.: Mt. Greylock. ME.: Seal Harbor, VII-29-1930, A. L. Melander. N.Y.: Albany, VI-11-1906; Keene Valley, VIII-26-1917, H. Notman; Woodworth's Lake, Adirondack Mts., C. P. Alexander. ONT.: Webbwood, VII-24-1971, G. Muller. S.C.: Clemson, ex pig #7 (dry stage), VIII-15-1966, J. A. Payne. VA.: Holmes Run, Fairfax Co., VI-26 and VII-29, 1960, W. W. Wirth.

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## DE GEER'S EXOTIC MUSCA SPECIES (DIPTERA: SYRPHIDAE AND CALLIPHORIDAE)

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ABSTRACT—*Musca surinamensis* De Geer, described from Surinam, is relegated to *nomen dubium* status in the family Syrphidae. *Musca erythrocephala* De Geer, also described from Surinam, is newly placed as a synonym of *Cochliomyia macellaria* (Fabricius).

De Geer, in his *Memoires pour servir a l'histoire des Insectes* (1776: 145, 146), described only 2 exotic species of *Musca*, *surinamensis* and *erythrocephala*, both from Surinam. Fabricius (1781:422, 424) synonymized both species (see below) although he indicated that the synonymy of *erythrocephala* was dubious. Since Fabricius' time both of De Geer's names have been considered to apply to syrphids and Fabricius' synonymies have been accepted almost without exception. However, while preparing the fascicle on the family Syrphidae for *A Catalogue of the Diptera of the Americas south of the United States*, I questioned both of Fabricius' synonymies and have decided that neither is correct.

### *Musca surinamensis* De Geer

This species has been accepted as a synonym of *Palpada hortorum* (Fabricius) 1775, a West Indian species not known from the main-